

REMARKS

In the office action, the Examiner (1) rejected Claims 25, 31, 32, 40 and 44-47 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,141,871 issued to Kureshy et al. ("Kureshy"), (2) rejected Claims 25 and 33 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,131,512 issued to Verlinden et al. ("Verlinden"), and (3) rejected Claims 25-27, 29, 31, 32, 36, 37 and 44-47 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,212,949 issued to Inder et al. ("Inder"). Reconsideration and allowance of the application, as amended, are requested.

I. Rejections based on Kureshy

Kureshy discloses a fluid dispensing system including an optical detection system that, during use of the fluid dispensing system, detects the downward travel of a pipette. The pipette is positioned generally with a servo system or a stepper motor, but final adjustment is made using the optical sensor. (col. 2, lines 23-26).

Claim 25 is directed to an apparatus for determining which pin locations in a printhead of the microarray spotting instrument are occupied by releasably or movably mounted fluid dispensing pins. The apparatus is in a microarray spotting instrument and comprises at least one sensor element to automatically detect whether a fluid dispensing pin is present or absent in each said pin location for determining the arrangement of a plurality of fluid dispensing pins loaded in said printhead. Determining the arrangement of the fluid dispensing pins loaded in the printhead is important for a number of reasons including, e.g., to verify that this is the same arrangement that has been entered into an instrument control program operating the spotting instrument. If the arrangement of pins loaded in the printhead is different from that entered in the control program, and this is not detected, then not only are the spotting results likely ruined, but also the typically fragile pin tips may be damaged by unintentionally striking some part of the equipment.

Kureshy does not disclose or in any way suggest determining any arrangement of a plurality of fluid dispensing pins loaded in a printhead. As noted above, Kureshy is only concerned with detecting the downward travel of a pipette so that adjustments can be made to the final positioning of the pipette. Kureshy does not even recognize the problem of having an arrangement of pins loaded in a printhead that is different from an arrangement that has been entered into an instrument control program.

Claim 25 is, therefore, patentable over Kureshy. Claims 26-47 are dependent on Claim 25 and are also patentable for at least the reasons noted above.

II. Rejections based on Verlinden

Claims 25 and 33 were also rejected as being anticipated by Verlinden. Verlinden discloses use of strain gauges for adjusting the registration of printing masters in a printing press. Verlinden does not even remotely relate to microarray spotting instruments. Accordingly, it does not disclose or suggest an apparatus for determining which pin locations in a printhead of the microarray spotting instrument are occupied by releasably or movably mounted fluid dispensing pins, the apparatus being in the microarray spotting instrument.

Verlinden also does not disclose or suggest at least one sensor element to automatically detect whether a fluid dispensing pin is present or absent in each said pin location for determining the arrangement of a plurality of fluid dispensing pins loaded in said printhead. Verlinden's "register pins" to which the Examiner refers presumably have a fixed arrangement, so there would be no need to determine this arrangement. Verlinden, of course, does not recognize the problem of having an arrangement of pins loaded in a printhead that is different from an arrangement that has been entered into an instrument control program.

Claim 25 and Claims 26-47, which are dependent thereon, are thus patentable over Verlinden.

III. Rejections based on Inder

Inder discloses a device having a plurality of fluid aspirator tips (6) that aspirate fluids from cells (15). The device senses the presence of fluid in the cells. The aspirator tips (6) appear to be fixedly attached to the device. Like Verlinden, Inder does not relate to microarray spotting instruments.

Accordingly, with respect to Claim 25, Inder does not disclose or suggest an apparatus for determining which pin locations in a printhead of the microarray spotting instrument are occupied by releasably or movably mounted fluid dispensing pins, the apparatus being in the microarray spotting instrument.

Inder also does not disclose or suggest at least one sensor element to automatically detect whether a fluid dispensing pin is present or absent in each said pin location for determining the arrangement of a plurality of fluid dispensing pins loaded in said printhead. As noted above, Inder's aspirator tips appear to be fixedly attached and therefore have a fixed arrangement. There would therefore be no need to determine this arrangement. Inder does not even recognize the problem of having an arrangement of pins loaded in a printhead that is different from an arrangement that has been entered into an instrument control program.

Claim 25 and dependent Claims 26-47 are thus patentable over Inder.

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IV. Conclusion

Claims 1-53 are pending in the present application. As the application is now believed to be in condition for allowance, issuance of a Notice of Allowance is respectfully requested.

Respectfully submitted,



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